Groundwater Reduction Plan Participant Meeting
October 19, 2011

Presentation Outline

- Introductions
- FB Subsidence District Update
- Drought Update – Water Supply Impact
- GRP Water Use
- Projects and Studies
  - Surface Water Conversion
  - Reclaimed Water
- Financials
- GRP Changes – Participant Requirements

Fort Bend Subsidence District Update

Tom Michel
FBSD General Manager

2003 Regulatory Plan
Key Elements

Fort Bend Subsidence District

Reg. Areas & Conversion Requirements

Area A

Reduce GW pumpage by 30% by 2013

Reduce GW pumpage by 60% by 2025

Exemptions: Ag. Irrigation & Livestock,

TWD <= 10.0 mgy until alt. supplies available

will consider Economic Hardships

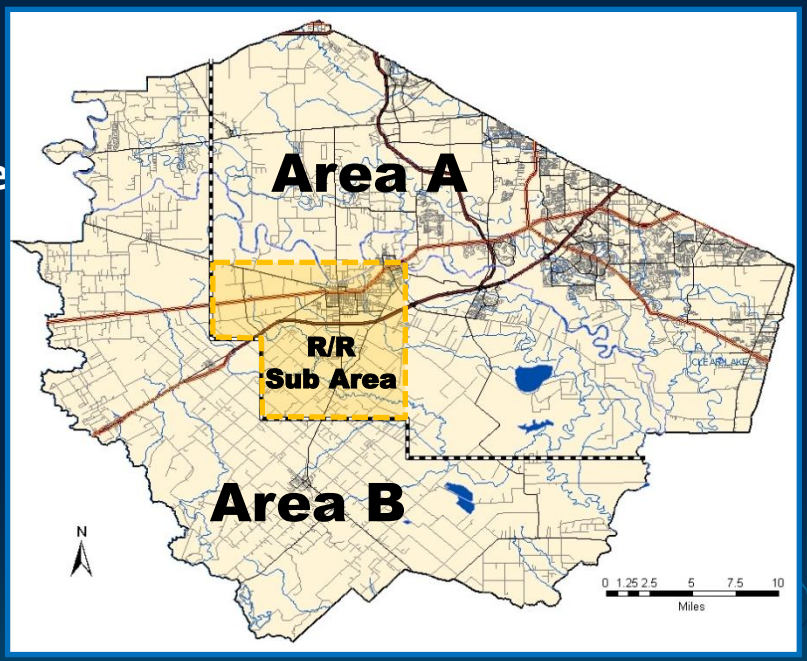
Richmond/Rosenberg Sub-Area:

GRPs due starting in 2010

Reduce GW pumpage by 30% by 2015

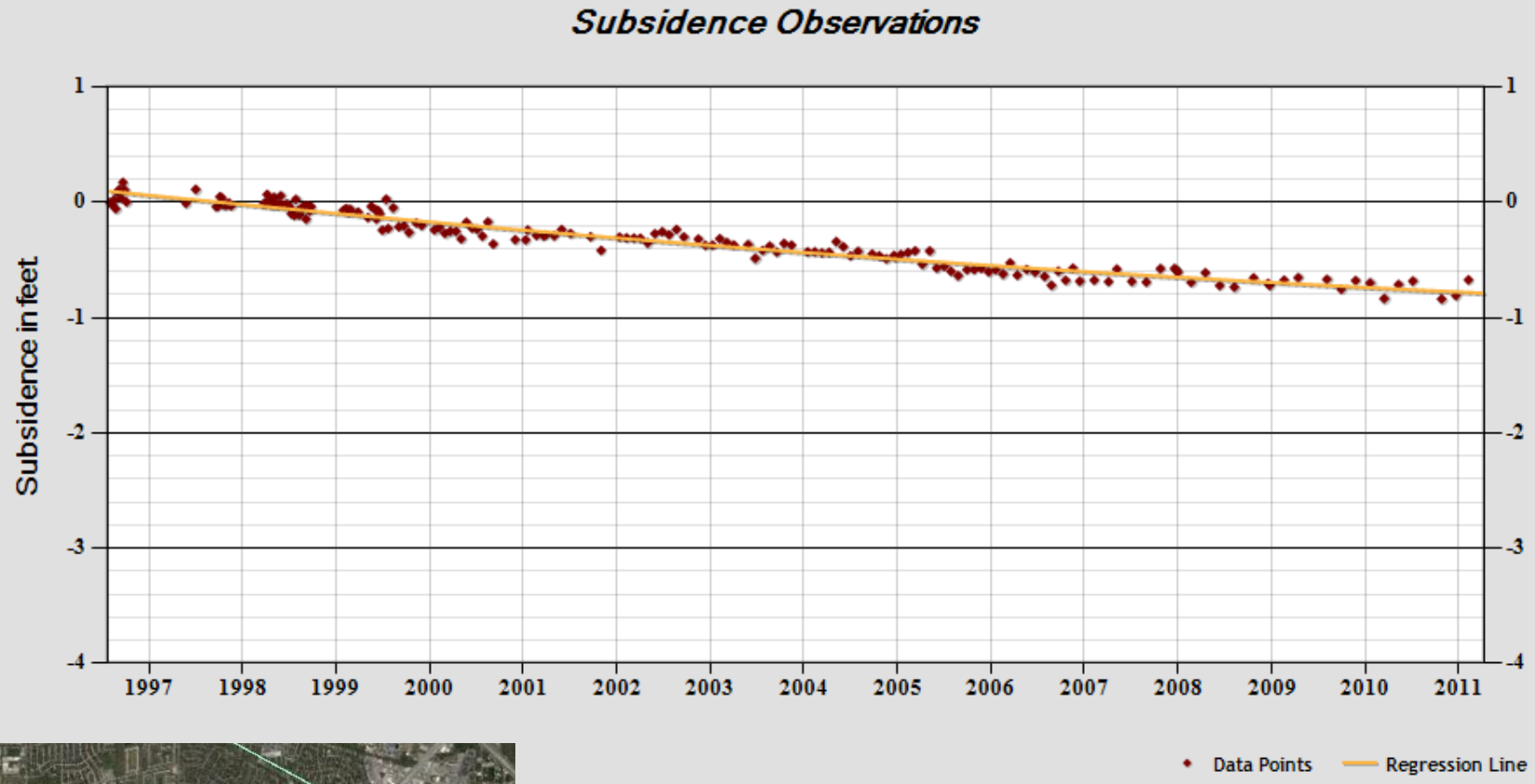
GRPs (2008 & 2010) - 100% compliance!

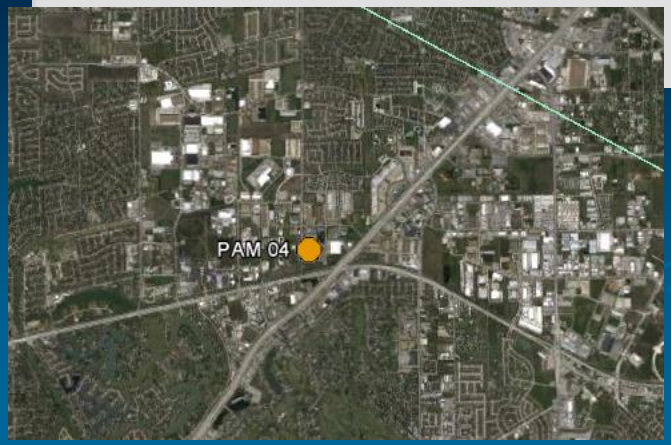
Disincentive Fee currently set in 2003 at $3.25

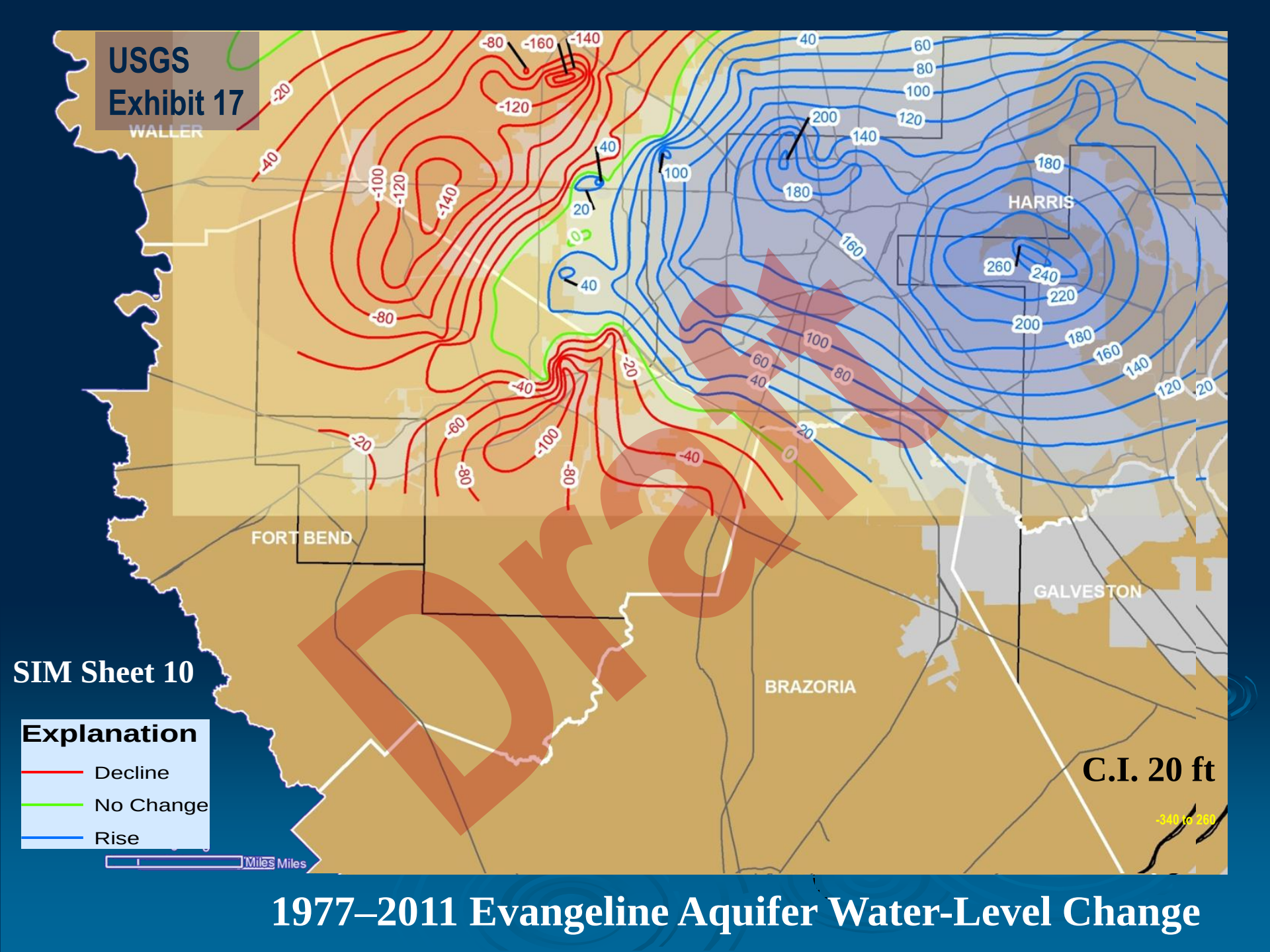


Area B - No scheduled GW reductions at this time - but cannot transfer GW to Area A unless usage has historical basis

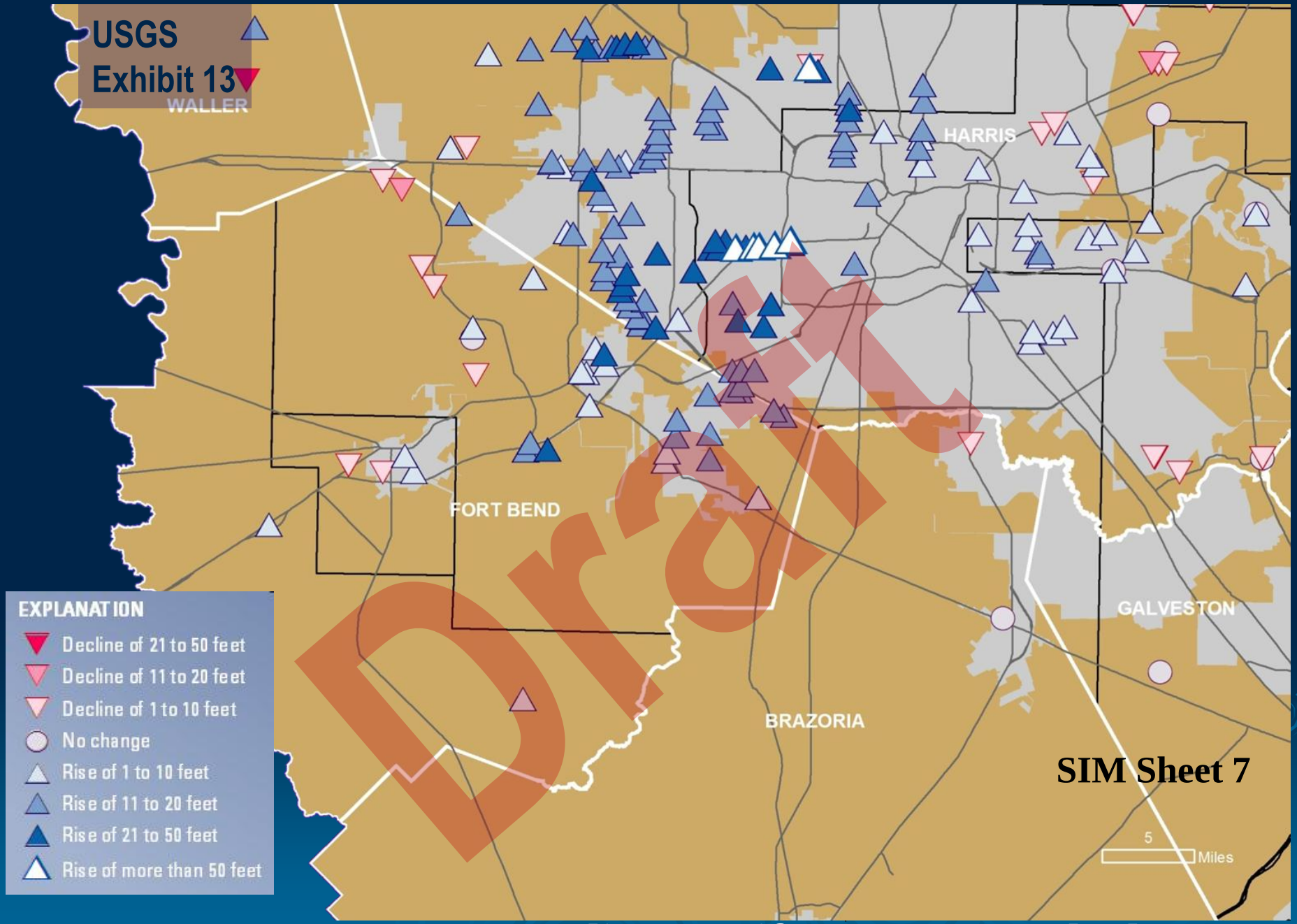
FBSD Subsidence Monitor Site – PAM 04 – Sugar Land







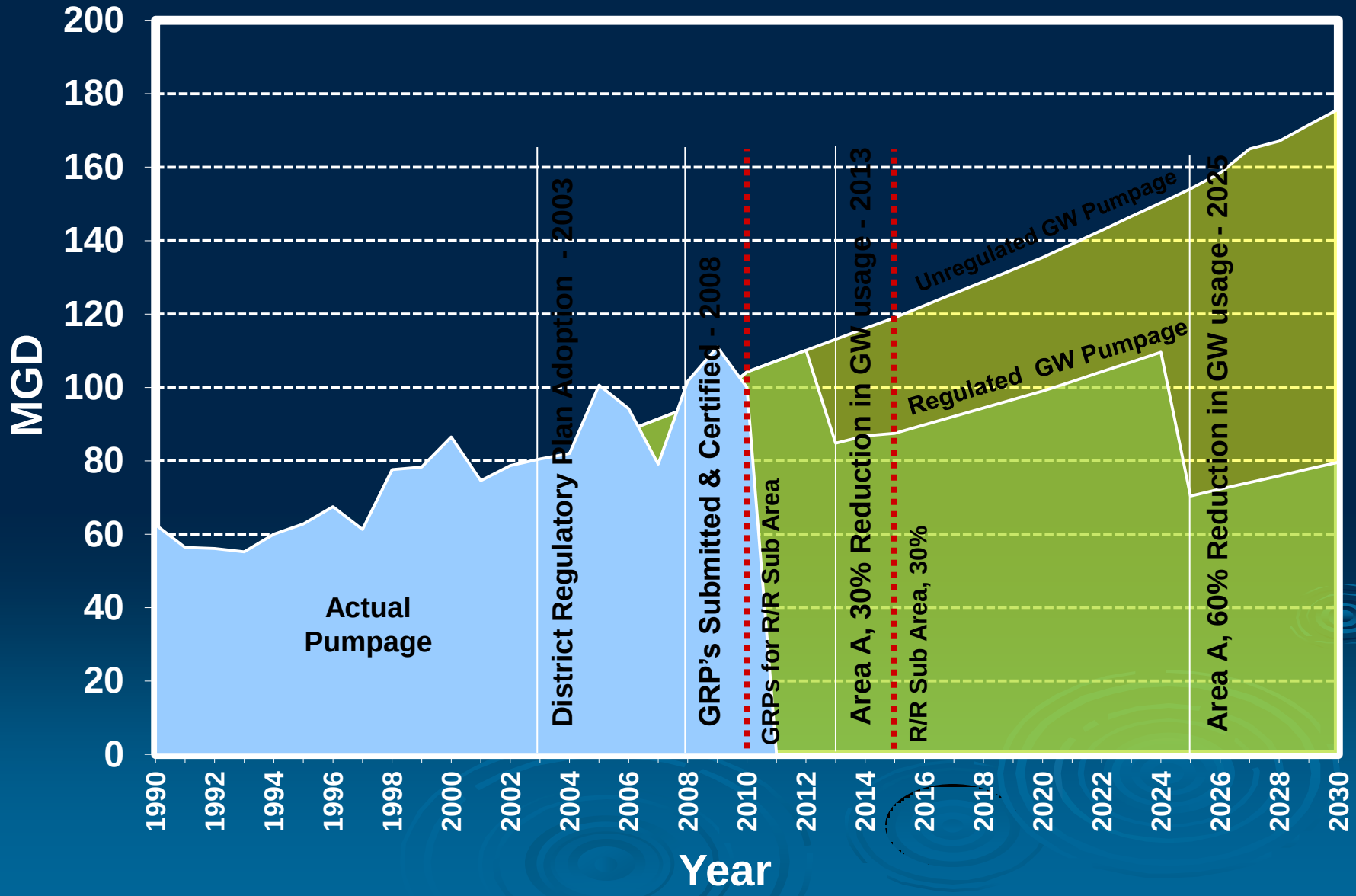
1977–2011 Evangeline Aquifer Water-Level Change



2010–11 Evangeline Aquifer Water-Level Change

Groundwater Pumpage
Actual vs. Projected

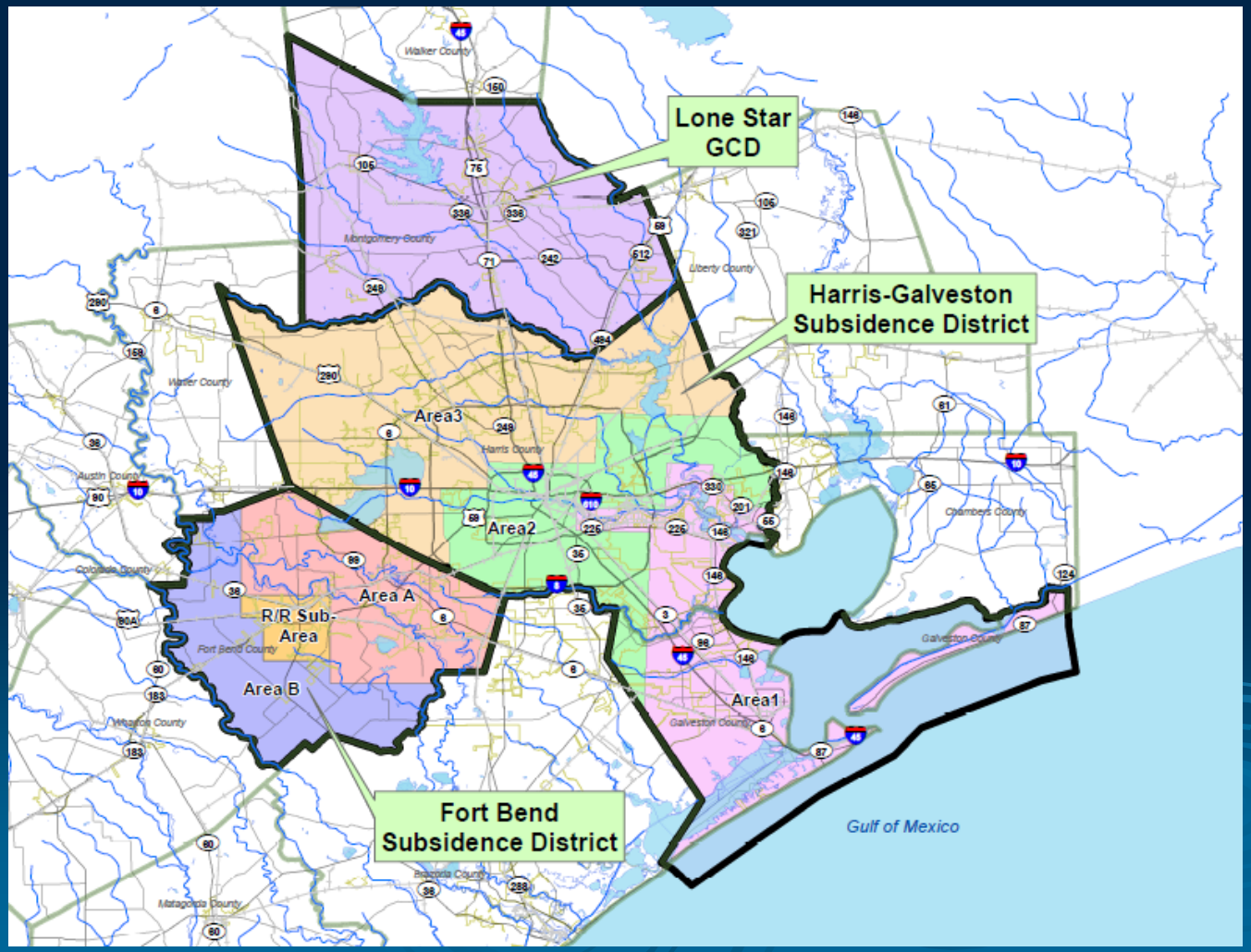
Fort Bend Subsidence District



HARRIS GALVESTON Subsidence DISTRICTS

Just Conserve!

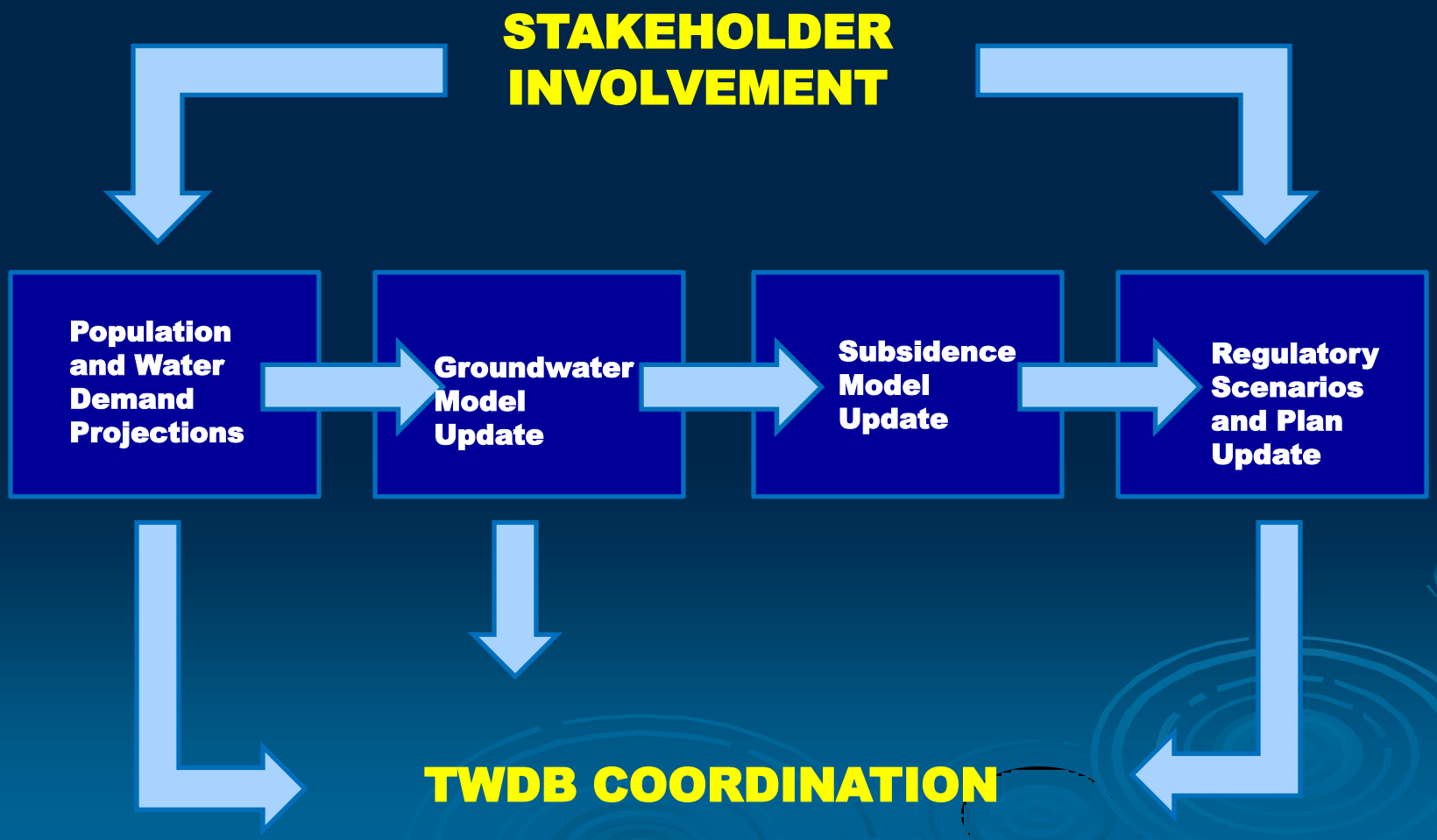
Regulatory Plan Update – Project Sponsors

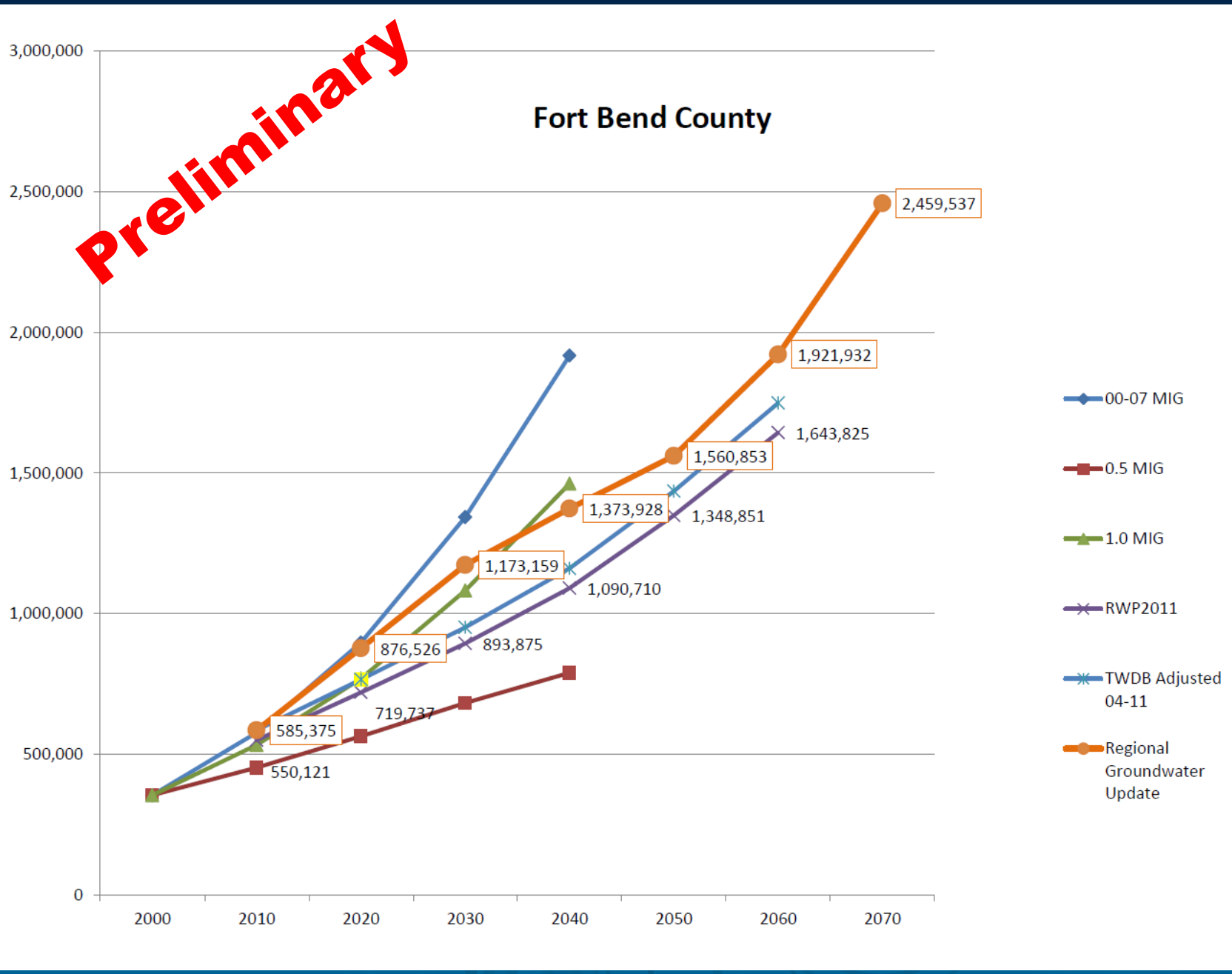


HARRIS GALVESTON Subsidence DISTRICTS

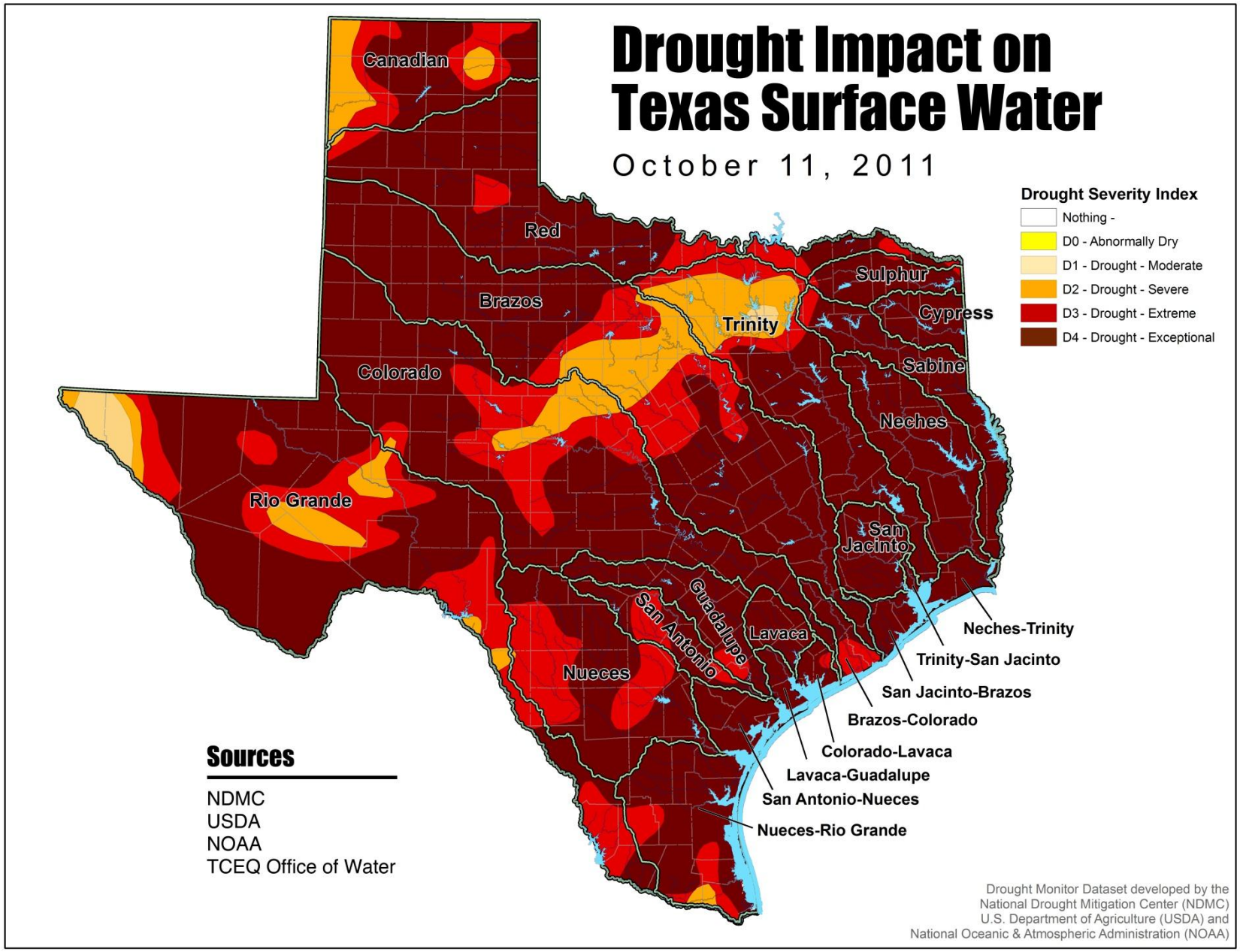
Just Conserve!

Regulatory Plan Update – Key Focus Areas




Preliminary
Fort Bend County
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
2000
2010
2020
2030
2040
2050
2060
2070
2,459,537
1,921,932
1,643,825
1,560,853
1,373,928
1,348,851
1,173,159
1,090,710
893,875
876,526
719,737
585,375
550,121
00-07 MIG
0.5 MIG
1.0 MIG
RWP2011
TWDB Adjusted 04-11
Regional Groundwater Update

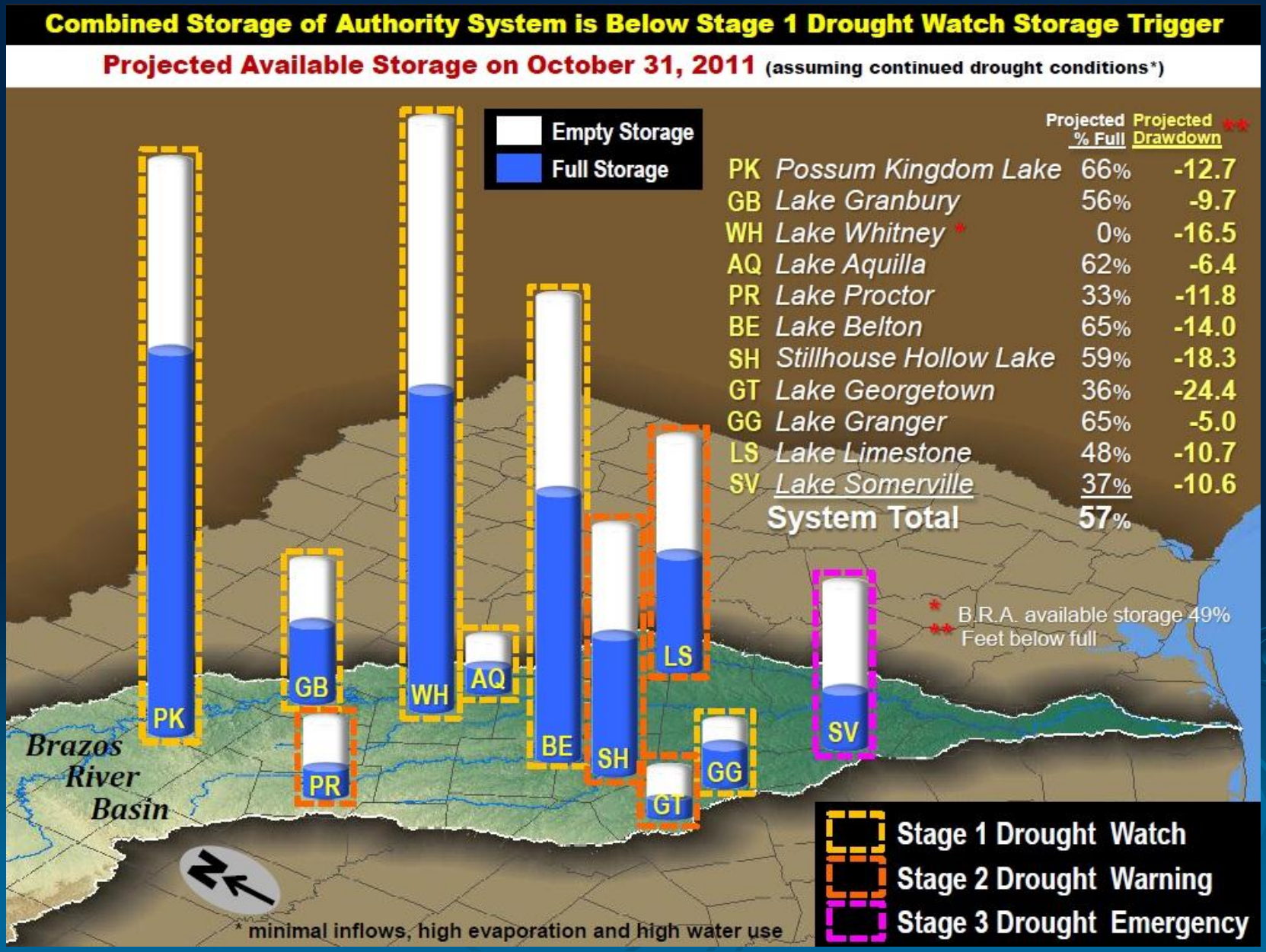
Drought Update
Water Supply Impact


Drought Impact on Texas Surface Water
October 11, 2011
Drought Severity Index
Nothing -
D0 - Abnormally Dry
D1 - Drought - Moderate
D2 - Drought - Severe
D3 - Drought - Extreme
D4 - Drought - Exceptional
Canadian
Red
Brazos
Colorado
Rio Grande
Trinity
Sulphur
Cypress
Sabine
Neches
San Jacinto
Guadalupe
San Antonio
Lavaca
Nueces
Neches-Trinity
Trinity-San Jacinto
San Jacinto-Brazos
Brazos-Colorado
Colorado-Lavaca
Lavaca-Guadalupe
San Antonio-Nueces
Nueces-Rio Grande
Sources
NDMC
USDA
NOAA
TCEQ Office of Water
Drought Monitor Dataset developed by the
National Drought Mitigation Center (NDMC)
U.S. Department of Agriculture (USDA) and
National Oceanic & Atmospheric Administration (NOAA)

Drought Update

- Worst 1 year drought in Texas History
- Governor's Disaster Proclamation Renewed
- Curtailment of Water Rights - Brazos Basin 1960
- TCEQ –11.053. Emergency Order Concerning Water Rights. Rulemaking to allow suspension and adjustments of water rights by the TCEQ executive director.
- www.tceq.texas.gov/response/drought
- www.brazos.org

Brazos River Reservoir System



GRP Water Supply Contracts

- GRP long term surface water needs
  - 9 MGD in 2013, 27 MGD in 2025
  - Current Supplies
    - 20.0 MGD GCWA
    - 16.2 MGD Oyster Creek (WCID #1)
      - 18,159 AF
    - 4.1 MGD BRA (sub-leases)
      - 4588 AF
    - Reliability issues, looking at other long term supply options

Raw Water Supply

- GCWA Water Rights Permits are Run of the River
- Water not reliable in a drought without Reservoir back up
  - BRA has No reservoir capacity available
- City contract for BRA Reservoir water as secondary source last year 4588 AF ~ $287,000
  - Allowed to sublease water this year
- Additional request to BRA for 15,000 AF
- Working with GWCA to firm up water supplies

GRP Update

GRP Participants

Public Water Systems

- FB MUD 106 (Greatwood)
- FB MUD 112 (New Territory)
- Plantation MUD (Tara Plantation)
- Tx Dept of Criminal Justice
- Royal Valley Utilities
- City of Sugar Land

Private Businesses

- Texas Par Golf
- River Pointe Golf
- WSG Sweetwater
- Schlumberger

Home Owner Assoc & Levee Dist

- Royal Valley HOA
- Avalon CAI
- Sugar Mill CAI
- Sugar Lakes HOA
- First Colony Comm Association
- New Territory Res. Comm Assoc.
- River Park HOA
- LID 17 (Telfair Levee Dist.)
- Venetian Estates
- City Airport

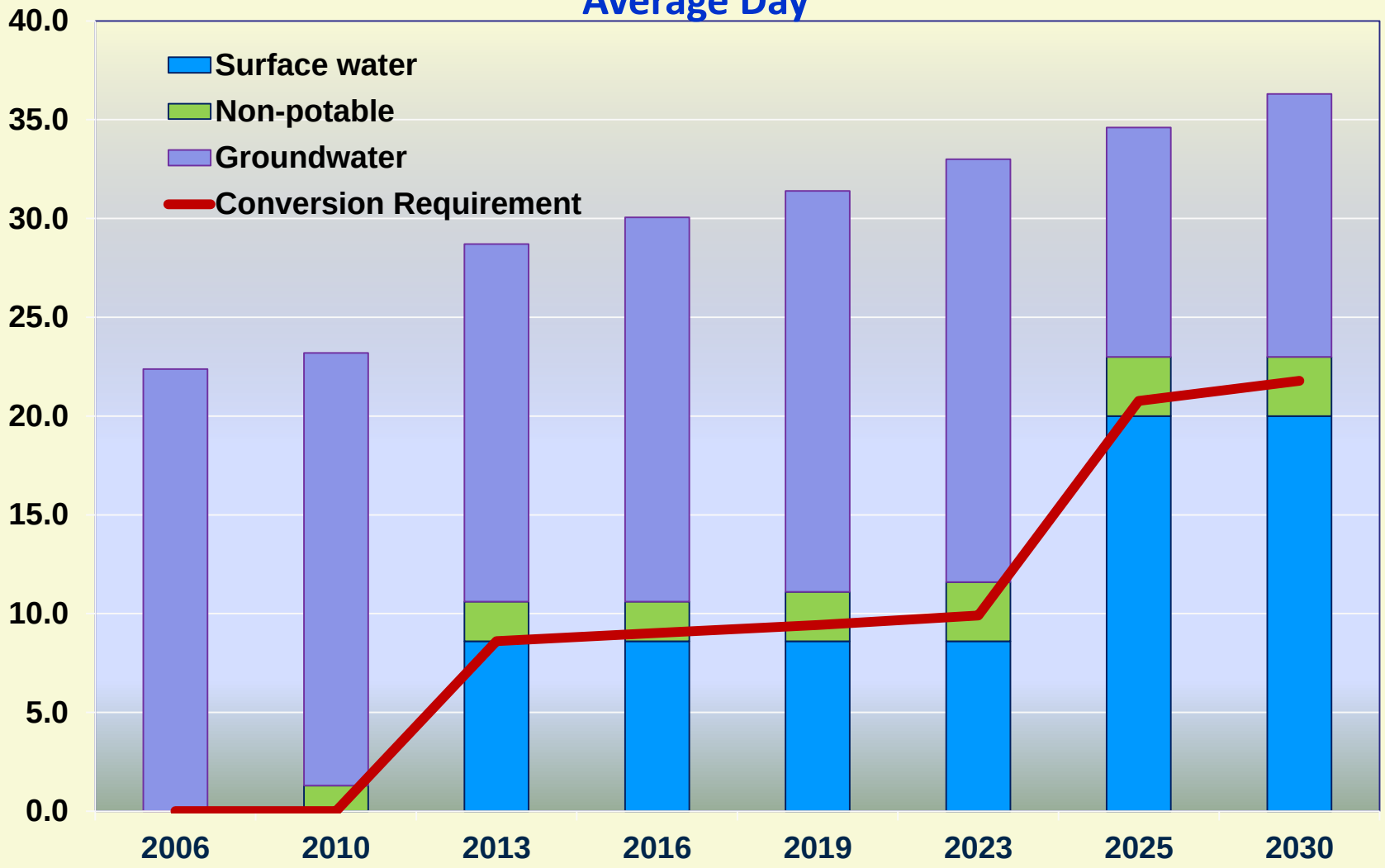
GRP Water Demand

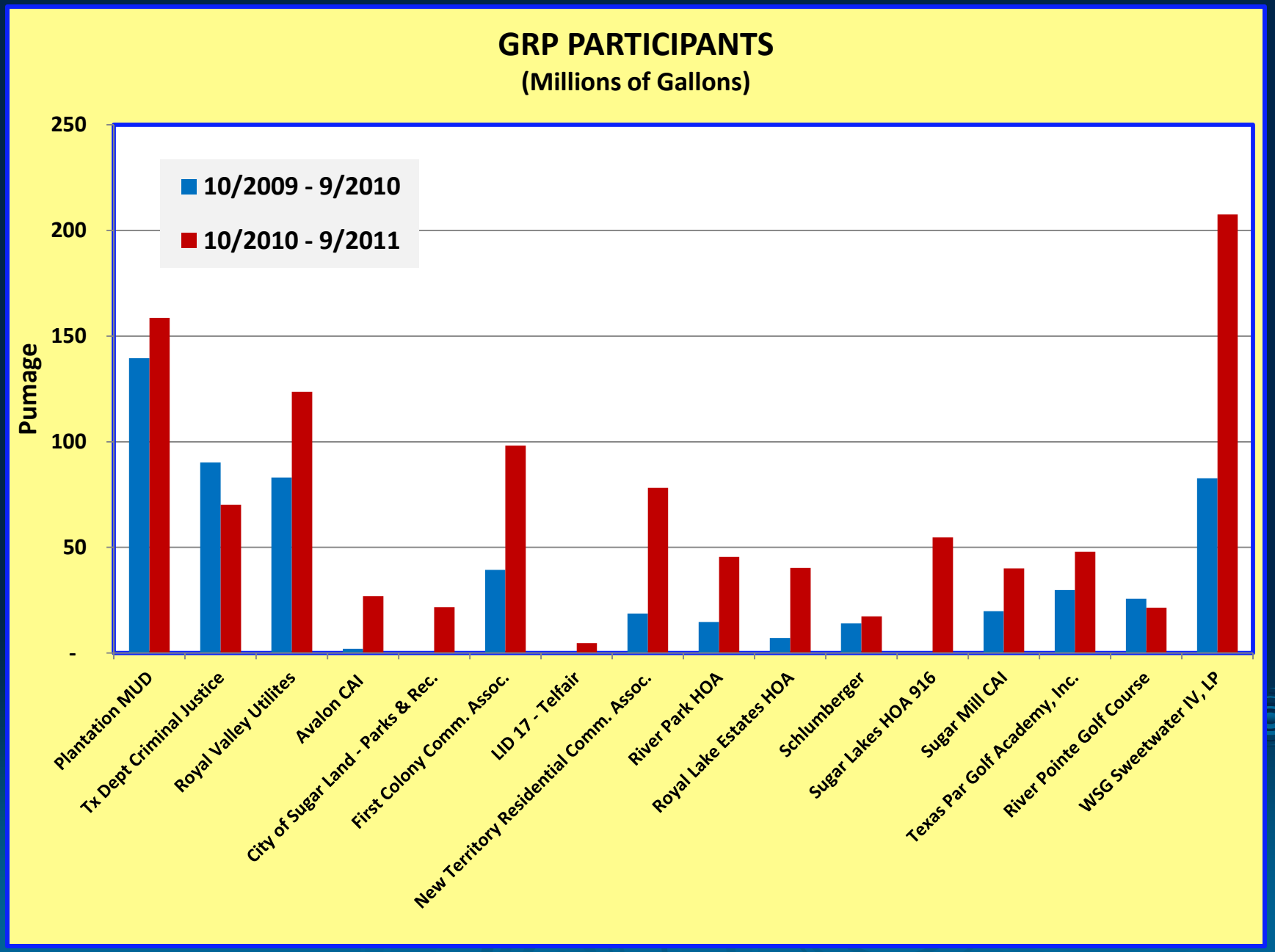
Million Gallons per Day (MGD) Average Day

Year	Demand		Conversion
2010	22.2		
2011	25.6		1.3
2011	*28.8*		*1.3*
2013	28.7	30%	8.6
2024	33.5	30%	10.1
2025	34.6	60%	20.8
Ultimate	36.3	60%	21.8

GRP Water Demand

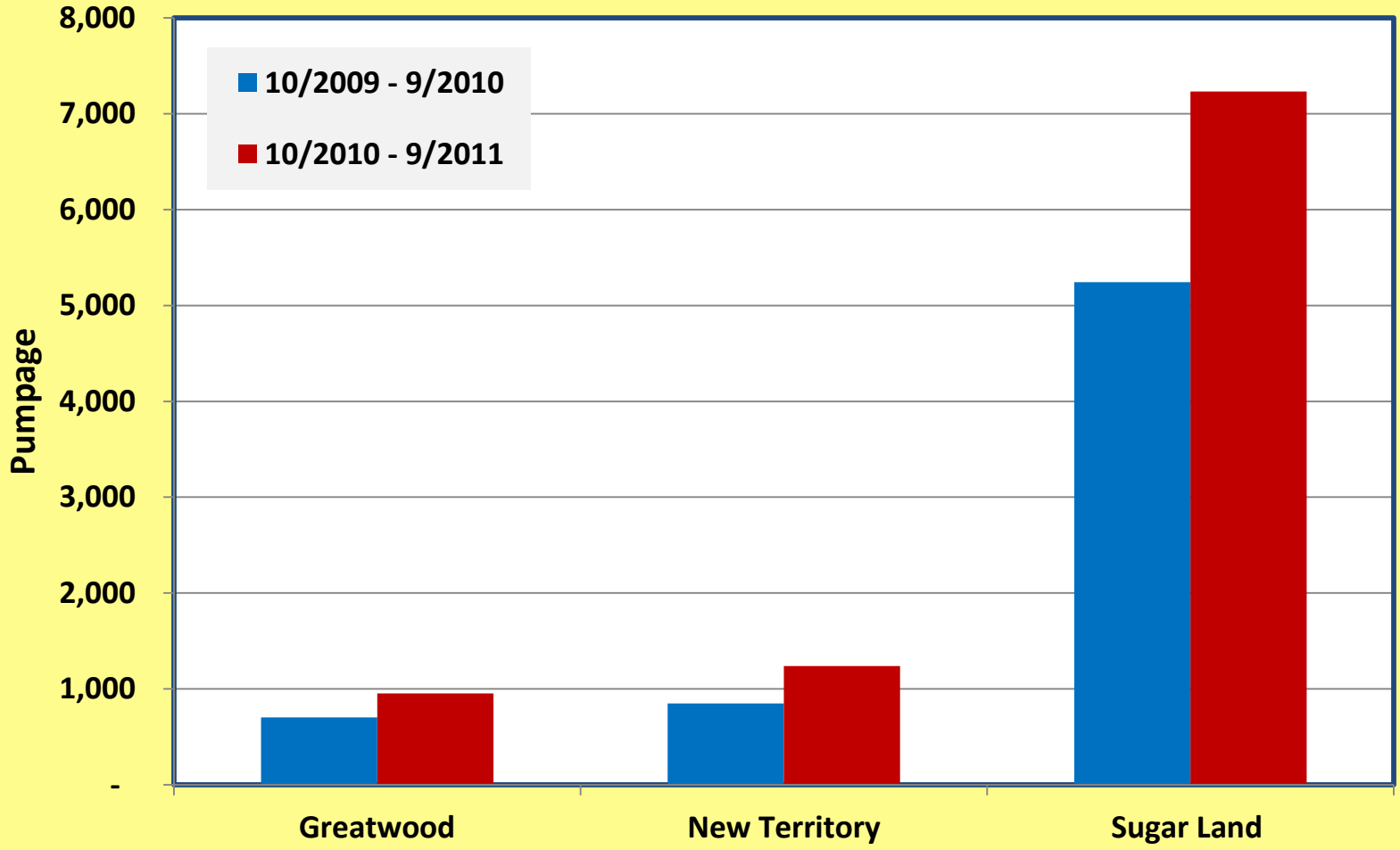
Average Day




GRP PARTICIPANTS
(Millions of Gallons)
Pumage
250
200
150
100
50
-
10/2009 - 9/2010
10/2010 - 9/2011
Plantation MUD
Tx Dept Criminal Justice
Royal Valley Utilites
Avalon CAI
City of Sugar Land - Parks & Rec.
First Colony Comm. Assoc.
LID 17 - Telfair
New Territory Residential Comm. Assoc.
River Park HOA
Royal Lake Estates HOA
Schlumberger
Sugar Lakes HOA 916
Sugar Mill CAI
Texas Par Golf Academy, Inc.
River Pointe Golf Course
WSG Sweetwater IV, LP

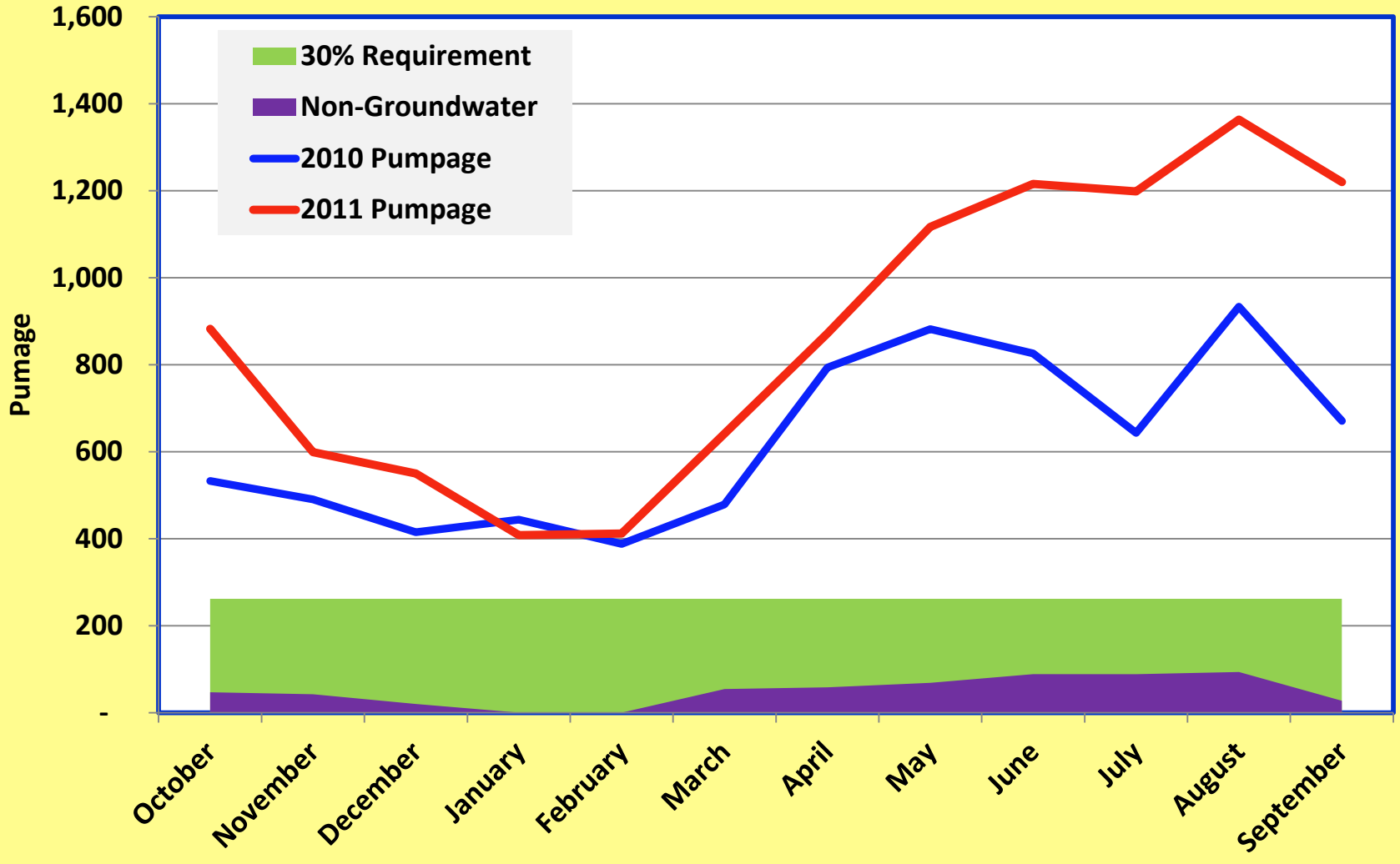
POTABLE WATER WELLS

(Millions of Gallons)



FY10 - FY11 ACTUAL PUMPAGE

(Millions of Gallons)



2011 Pumpage was a 28% increase over 2010

GRP Participant Water Use

- Dramatic Increase in water use
- 28% increase in one year *7.5 to 10.4 billion gallons*
- Some participants used 72% more water in 2011 than in 2010
- Water Conservation Important
- Post 2013 conversion:
  - Thoughtful management of water use
  - Potential for Implementation of Water Conservation and Drought Contingency Plans

GRP Implementation

Jessie Li, PhD., P.E.
Assistant Utilities Director

GRP Implementation Strategy

4 Strategies

1. Surface Water Conversion
2. Water Conservation
3. Water Reuse /Reclaimed
   - Obtained TCEQ 210 for reuse at the 3 Wastewater plants in 2008
4. Non–potable surface water use
   - GRP assumes 2 MGD

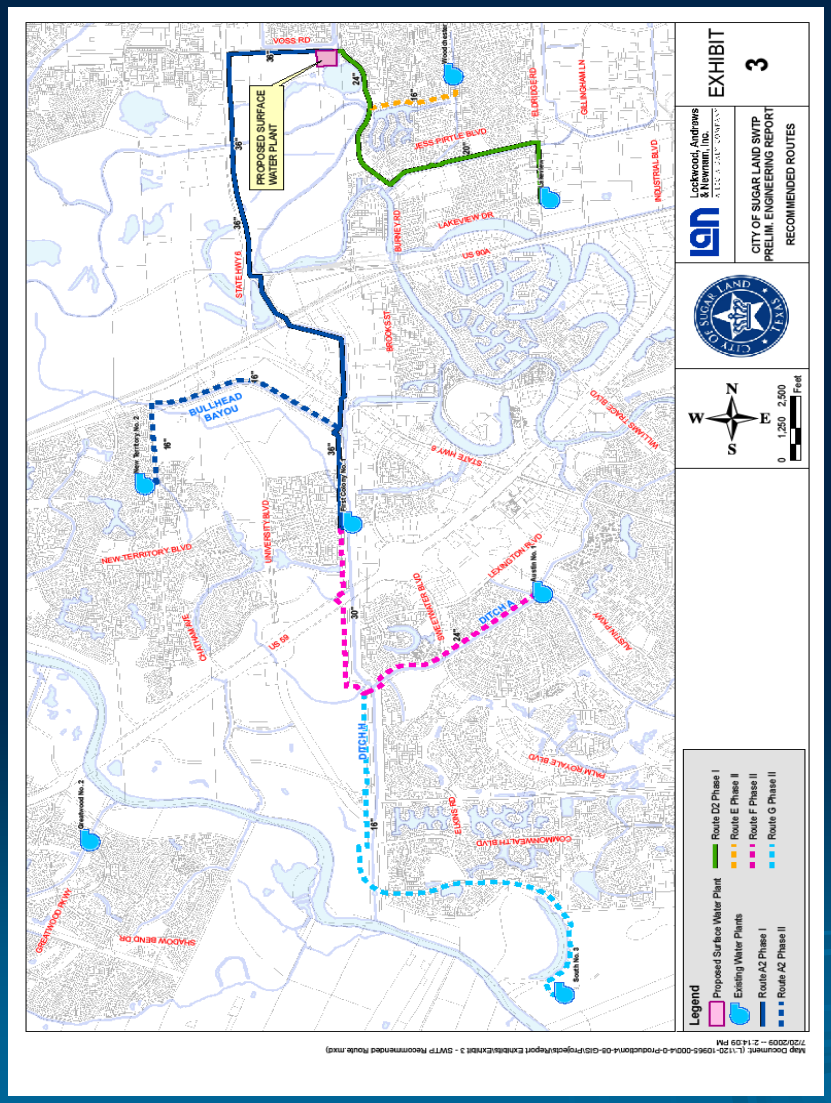
SWTP Implementation Strategy

- Surface Water Plant Size
  - 9 MGD operational in 2013
  - Expand to 22 MGD in 2025
  - MF/UF Membrane Filtration (RO provision 2025)
- Build base load plant - 9 mgd 365 days year
- Over convert dense areas – minimize transmission lines
- Surface water delivered to groundwater plants for distribution and blending to minimize changes in taste
- Peak water demands met from groundwater

Surface Water Conversion Projects

- 9 MGD Surface Water Treatment Plant Expandable to 22 MGD
- Transmission Lines
- Groundwater Plant Improvements

Transmission Lines

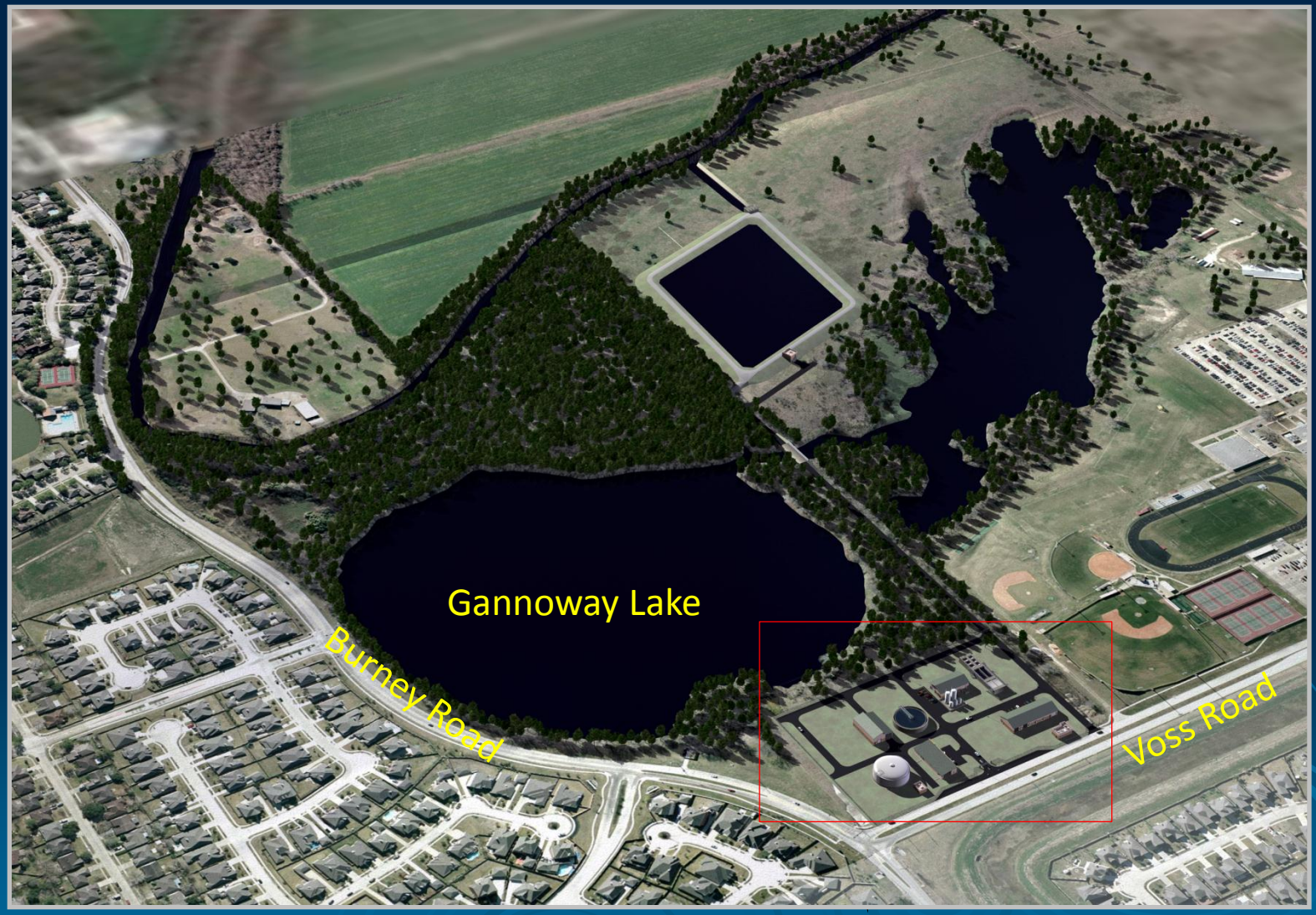


- Design: 4/10 – 2/11 & 11/11
- Construction Budget $19.7 M
- Two Construction Contracts
  - Lakeview WP line:
    - 3/11 – 11/11
  - First Colony WP line:
    - 1/12 – 1/13

Groundwater Plant Improvements

- *PER: 2/10 – 10/10*
- **Design: 11/10 – 11/11**
- **Construction Budget $ 8.8 M**
- **Construction: 1/12 – 1/13**
  - **Disinfection**
  - **Distribution pump increase**
  - **Blending strategy**

Surface Water Plant Location



SWTP - Complex Project

- CMAR: 3/10 – 3/14
  - Construction: 5/11 – 6/13
  - First Year Operation: 6/13 – 6/14
- Construction Budget $ 69 M
- Integration of Ground and Surface Water Supplies - Quality
- Balance Water Demands to Meet Minimum Conversion Requirements - Quantity
- Complex Instrumentation and SCADA Systems Needed to Achieve Objectives

SWTP Construction Challenges

- Poor Soil Conditions
  - Soil Blending
  - Pile Construction
- Flood Plain & Wetlands
- Small Site

Raw Water Intake Design

Membrane Building

Aero Photo

727.520.8181
www.aerophoto.com

City of Sugar Land, TX Surface
Water Treatment Plant Facility

Image # 110907 6197
Date 09.07.11

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City of Sugar Land, TX Surface
Water Treatment Plant Facility

Image # 110907 6195
Date 09.07.11

Aero Photo

727.520.8181
www.aerophoto.com

City of Sugar Land, TX Surface
Water Treatment Plant Facility

Image # 110907 6199
Date 09.07.11

Additional Projects

- South Plant - Riverstone Reclaimed Water Project
- West Plant - New Territory Water Use Study
- Small Scale Scalping Plant - 50/50 TWDB Grant
  - Sweetwater Golf Course
- Oyster Creek Water
  - Riverbend Golf Course
  - Sugar Creek Golf Course
  - Baseball and Imperial Development

Groundwater Credits Earned

- Early Conversion Credits –
  Non-Potable Projects Completed
  - Lake Pointe Irrigation
  - Telfair Lake Filling
  - Venetian Estates Lake Filling and Irrigation
  - Orchard Irrigation
- WaterWise Conservation Education
  - Presentations to 4th - 5th Graders in Ft. Bend
- Total Credits (9/2011): 3.064 billion gal
- Value ($ 3.90/1000 gal) = $ 11,947,250

Financial Update

Jennifer Brown
Budget and Research Director

GRP Philosophy

- City Policy adopted in September 2002
  - We will Plan for the City and our ETJ.
- Separate GRP Fund Created, contains all Costs/Expenditures
- Costs of Surface Water Conversion Shared Equally among GRP Members
- Blended Rate for all Members

Financial Capacity

- All participants pay the same GRP fee
- Funded through the Surface Water Fund
- City sold Certificates of Obligation with pledge of GRP fees more cost effective than revenue bonds
  - Lower cost of borrowing
  - No bond coverage required
- Anticipated GRP rate in 2013 increased from estimate reported last year
  - ~$1.75 per 1,000 gallons

Surface Water Fund

- FY12 Expenditures Increases Compared to Prior Forecast:
  - Raw water $363,000 (purchased from BRA)
  - FY12 budget plan to issue debt for $92M; increased to $98.8M
  - Interest for debt service 4.25% to 4.65%
    - Debt Service Payment Increase
    - Capital Improvement Projects
    - FY12 - $2,278,000
    - FY13 - $294,800
    - Rate sensitive to any additional costs

Surface Water Fund
In Millions

	FY12	FY13	FY14	FY15	FY16
Revenues	**10.58**	13.13	14.22	14.45	14.68
Expenses	**10.51**	11.48	14.14	14.10	14.25
Net Income	**0.07**	1.65	0.08	0.35	0.43
End Balance	**5.72**	7.37	7.45	7.80	8.23
Rec Policy- 50%	**5.25**	5.74	7.07	7.05	7.12
Est. GRP Rate per 1000 gallons (Jan. 1)	***$1.32***	*$1.75*	*$1.75*	*$1.75*	*$1.75*

Capital Improvement Projects

Project Names	FY11	FY12	FY13
North WWTP Reclaimed Water		$1,200,000	
Non-Potable Reuse Study		75,000	
SCADA – Communication Conversion		385,000	
SWTP – O & M Manual and SOP		418,000	
Water Master Plan Update		200,000	
SWTP CT Study & Tracer Testing			74,800
WP Upgrades for Conversion	150,000		
SW Transmission Line	19,700,000		
Surface Water Treatment Plant	69,000,000		200,000
Total	$88,850,000	$2,278,000	$294,800

Does not include potential reuse projects for the West, South or Greatwood wastewater treatment plants

Surface Water Fund

	Revenues	*Expenses*	*Net*	*GRP Rate*
FY 08	$4,864,709	$2,636,519	$2,228,190	$0.25
FY 09	2,487,817	1,345,424	1,142,393	.25
FY 10	4,379,854	1,984,577	2,395,278	.60
FY 11P	104,999,386	105,310,828	- 311,442	.70
FY 12B	**10,576,775**	**10,506,624**	**70,150**	**1.32**
FY 13E	*13,130,713*	*11,484,080*	*1,646,634*	*1.75*
FY 14E	*14,222,327*	*14,136,884*	*85,443*	*1.75*
FY 15E	*14,453,449*	*14,099,913*	*353,535*	*1.75*
FY16E	*14,685,755*	*14,251,809*	*433,946*	*1.75*

Revisions to the Groundwater Reduction Plan

- FBSD requires Aggregate Water Well Permit
  - April 1, 2013 the GRP will submit and fund permit application for ALL participants
- Drought Contingency Plan Update
  - Participant Adoption and Compliance
- Revision of the GRP will include opportunity for Water Conservation Credits

GRP Amendment

- Water Conservation Credits - New
- Based on per connection water use - 2010
- Separate areas and classes of customers
- Ex. New Territory, Telfair, First Colony, residential, commercial, irrigation
- Target efforts like education on specific areas and customer classes
- Reductions from 2010 generate credits

Participant Obligations

- Projected Water Demand Update
  - due no later than March 1 each year
- Test and Calibrate Well Meters
  - due to GRP every 12 months
- Manage Irrigation systems
  - Rain sensors
  - Leak

Questions?

- Are these meetings frequent enough?
- Are you interested in receiving quarterly reports?
- What additional information do you need?
- We are happy to attend your HOA, board or customer meetings.

- Contact Information: 281-275-2450
- Colleen Spencer cspencer@sugarlandtx.gov
  SuEllen Staggs sstaggs@sugarlandtx.gov

Planning for Sugar Land's Future Water Today